

Charles Prosper Ollivier d'Angers (1796–1845) and his contributions to defining syringomyelia

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Abstract

Introduction Distinguished as an anatomist, pathologist, and clinician, the Frenchman Charles Prosper Ollivier d'Angers dedicated his life to accelerating the forefront of neuroscience. At a young age, he explored the diseases and disorders of the spinal cord during a time when clinical neurological investigation scarcely existed. Ollivier d'Angers coined the term “syringomyelia.”

Conclusion The coinage of the term syringomyelia by d'Angers shed light on the disorder causing more practitioners to investigate the spinal cord and its defects.

Keywords History · France · Spinal cord · Anatomy · Pathology · Syrinx · Neurosurgery

Introduction

Charles Prosper Ollivier was born in Angers, Western France in 1796 (Fig. 1). Unaware as to what his passion in life may be, Ollivier enrolled in the French Military School at 17 [1]. He became an exceptional officer in Napoleon's Young Guard fighting in the Battle of Waterloo that led to the fall of Napoleon Bonaparte. The loss allowed the royalists to reclaim power and Louis the XVIII to become

the French monarch in 1815. The shift in authority led to ambiguity in the military and caused Ollivier to leave the armed forces. He turned to the medical sciences, primarily due to his father being a pharmacist [2].

As Ollivier delved into his medical education, he was persuaded to study the spinal cord by Professor P.A. Beclard, a famous surgeon in Paris at that time [1]. Shortly thereafter, Ollivier became enthralled by the spinal cord and in studying its defects. Although he was hesitant at first, in 1823 he submitted his medical thesis to the Medical Faculty in Paris entitled “*Essai sur l'anatomie et les vices de conformation de la moelle épinière chez l'homme*” (Essay on the anatomy and conformation defects of the spinal cord in Man) [3]. Without the aid of a microscope, Ollivier was able to generate the anatomy, physiology, and pathology of the spinal cord. Ollivier insisted that during autopsies, the thought of the spinal cord being considered a large nerve was often exaggerated and inaccurate. The spinal cord was highly neglected and this drove him towards writing his first publication [4]. It was only 1 year later after his thesis had acquired immense acknowledgment that Ollivier, only 28 years old at that time, published his first work “*De la moelle épinière et de ses maladies*” (On the Spinal Cord and its Diseases).

Ollivier's first work became commonly recognized after it had been well evaluated in *The Lancet* [1]. The publication encompasses the anatomy and function of the spinal cord marrow and a large record of disorders. A second edition (Fig. 2) was published in 1827 followed by a third edition 10 years later in 1837. In his third publication, Ollivier first described the embryonic development of the spinal cord through the months and weeks before birth and was adamant about the importance of the path the spinal cord took to reach the medulla oblongata [1, 4]. Ollivier determined that the spinal cord marrow was in

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Fig. 1 Charles Prosper Ollivier d'Angers

direct contact with the brain by sending and receiving signals through nerves. Thus, he surmised that spinal cord marrow is responsible for sensitivity and voluntary movements through impulses imparted by the brain and that the brain and spinal cord are in continual movement [5]. This conclusion led to Ollivier participating in the re-edition of *A treatise on the diseases of Infants* by Charles Michael Billard [5]. Furthermore, Ollivier spent a great deal of time performing lesions on the spinal marrow of mammals and observing its abundant effects on respiration, heart circulation, and cutaneous transpiration [1]. In the third section of his publication, Ollivier provided his general reflections concerning spinal marrow diseases and a large monograph of disorders that gave the first description of a case that

would later be regarded as multiple sclerosis [4]. Within the third publication, Ollivier coined the phrase “syringomyelia” and provided the earliest and most accurate description of the disorder that is still in use today.

Cavity formation within the spinal cord was first recognized by a pupil of Sylvius, Stephanus in 1545 [6]. It was not until 1837 that Charles Prosper Ollivier d'Angers coined the term “syringomyelia” to describe what Stephanus had stumbled upon in the third edition of his publication. Ollivier applied the term to any cavity or canal in the spinal cord in relation with the fourth ventricle [1]. The initial symptoms include pain, numbness of the hands due to sensory loss, stiffness of the legs, scoliosis, vertigo, dysphonia, and cough-induced pain [7, 8]. Syringomyelia is still used today to indicate damage to the spinal cord due to the presence of abnormal fluid-filled cavities.

Ollivier’s coinage of the term, *syringomyelia*, caused more practitioners, anatomists, and pathologists to expend more time and energy to acquire knowledge about the disorder aiding in the advancement of neurosurgery. The disorder became more commonly known when a clinical depiction of syringomyelia was first described by Shultze in 1882. It was next outlined in relation to Chiari malformation by John Cleland in 1883 [6]. These developments ultimately led to Abbe and Coley performing a myelotomy to drain the syrinx cavities of the spinal cord and the first to complete a neurological procedure to treat syringomyelia [8].

Conclusion

Charles Prosper Ollivier d'Angers died at a young age of 49. Due to his diligence and persistence, he accomplished more than thought capable at the time. His enthusiasm and dedication to the study of the spinal cord led to his enormous success as a practitioner, anatomist, pathologist, and ultimate model for neuroscience. He opened the door to the innovative study of the spinal cord at a time when little knowledge and interest was being shed in this area. Ollivier d'Angers may be accredited for advancing neuroscience through his exten-

Fig. 2 Title page of d'Angers' book published in 1827 *Traite de la moelle epiniere et de ses maladies; contenant l'histoire anatomique, physiologique et pathologique de ce centre nerveux chez l'homme*

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TRAITÉ
DE LA
MOELLE EPINIÈRE
ET DE SES MALADIES,

CONTENANT

L'HISTOIRE ANATOMIQUE, PHYSIOLOGIQUE ET PATHOLOGIQUE
DE CE CENTRE NERVEUX CHEZ L'HOMME;

PAR C. P. OLLIVIER, D'ANGERS,

DOCTEUR EN MÉDECINE DE LA FACULTÉ DE PARIS; CHIRURGIEN DU QUATRIÈME
DISPENSARE DE LA SOCIÉTÉ PHILANTROPIQUE; MEMBRE DE L'ACADÉMIE
ROYALE DE MÉDECINE, DE LA SOCIÉTÉ MÉDICALE D'ÉMULATION, DE L'ATHÉ-
NÉE DE MÉDECINE DE PARIS, DE LA SOCIÉTÉ DE CHIMIE MÉDICALE; MEMBRE
CORRESPONDANT DE LA SOCIÉTÉ ROYALE DE MÉDECINE DE MARSEILLE, DE
LA SOCIÉTÉ DE MÉDECINE D'ANGERS.

DEUXIÈME ÉDITION,

REVUE, CORRIGÉE ET AUGMENTÉE

AVEC TROIS PLANCHES.

TOME PREMIER.

A PARIS,

CHEZ CREVOT, LIBRAIRE,

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Marché aux Poulets, n. 1213.

1827.

Fig. 1

attempts to evaluate the various suggestions for treatment have been equally frustrating.

We have carefully reviewed 'syringomyelia' with particular reference to pathology, pathogenesis, diagnosis and treatment. Our experiences and those of others strongly indicate that new terms to identify instances of spinal cord cavitation are essential; we have suggested two: 'syringo-

sive study and publication dedicated to anatomy, function, and defects of spinal cord marrow.

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